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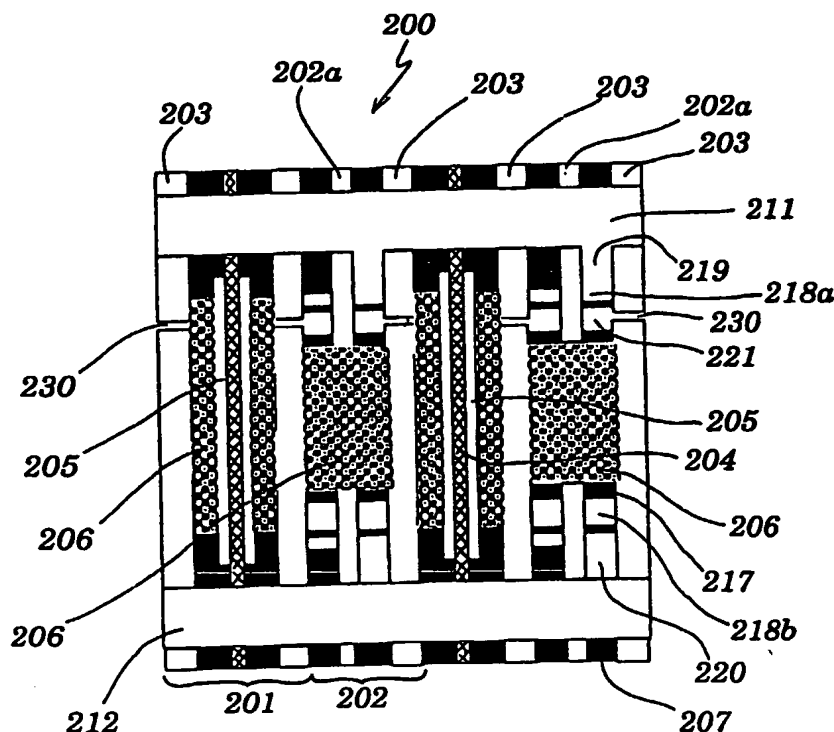
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(54) Title: FUEL CELL WITH EVAPORATIVE COOLING AND HUMIDIFICATION



(57) **Abstract:** The present invention relates to a membrane electrochemical generator (200) formed by a multiplicity of reaction cells (201) mutually connected in electrical series and assembled according to a bipolar configuration. In accordance with the present invention, the thermal management of the membrane electrochemical generator (200) and the hydration of the membrane (204) are ensured by the injection of a cooling fluid, preferably liquid water, in the gaseous reactant feed. Such an injection takes place through a multiplicity of calibrated fluid injection holes (230) obtained in conductive bipolar plates (203) delimiting the reaction files (201). The cooling fluid can be preheated by passing through a collector/distributor structure (206) located in an additional cell (202).

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